

SN 10/616,610
Docket No. S-100,580
In Response to Office Action dated April 23, 2007

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) An apparatus for creating an atmospheric mini-plasma, comprising,
 - a housing comprising an exit for an atmospheric mini-plasma generated inside the housing to exit the housing;
 - a discharge chamber within the housing;
 - a first planar electrode disposed within the discharge chamber;
 - a second planar electrode disposed within the discharge chamber, said second electrode parallel to and spaced apart from the first electrode such that a discharge gap is established between the first electrode and the second electrode, the first and second electrodes being configured to generate a mini-plasma that exits the housing;
 - a supply of active reaction gas;
 - a supply of plasma support gas;
 - an active reaction gas tube in fluid communication with the discharge chamber for sending active reaction gas from the supply of active reaction gas into the discharge chamber; and
 - a plasma support gas tube in fluid communication with the discharge chamber for sending plasma support gas from the supply of plasma support gas into the discharge chamber, wherein the plasma support gas tube, the active reaction gas tube, and the housing are configured such that as active reaction gas that is sent through the active reaction gas tube and then through the discharge chamber and as plasma support gas is sent through the plasma support gas and then through the discharge chamber, passes through the discharge chamber, the active reaction gas is surrounded by a layer of the plasma support gas as both the active reaction gas and plasma support gas flow through the discharge chamber.

2-4. (cancelled)

SN 10/616,610
Docket No. S-100,580
In Response to Office Action dated April 23, 2007

5. (currently amended) The apparatus of claim 1, further comprising a first flowmeter for metering the plasma support gas from the supply of plasma support gas into the discharge chamber, and a second flowmeter for metering the active reaction gas from the active reaction gas supply into the discharge chamber.

6. (previously amended) The apparatus of claim 1, further comprising a power supply connected to the first electrode and the second electrode, the power supply providing voltage pulses to the electrodes to generate a mini-plasma discharge between the electrodes.

7. (previously amended) The apparatus of claim 6, wherein said power supply comprises a direct current power source, a pulse generator connected to a switch, and a power transformer.

8. (previously amended) The apparatus of claim 7, wherein said direct current power source is a dry-cell battery.

9. (original) The apparatus of claim 8 where said dry-cell battery is an alkaline battery.

10-11. (cancelled)

12. (previously amended) The apparatus of claim 1 where said support gas is chosen from inert gases.

13. (previously amended) The apparatus of claim 1 where said support gas is selected from the group consisting of helium, argon, nitrogen, oxygen, and air.

14. (previously amended) The apparatus of claim 1 where said reactive gas is selected from the group consisting of oxygen, nitrogen, chlorine, and fluorine.

SN 10/616,610

Docket No. S-100,580In Response to Office Action dated April 23, 2007

15. (previously amended) The apparatus of claim 1 wherein said reactive gas is selected from the group consisting of gaseous compounds of oxygen, nitrogen, chlorine, and fluorine.

16. (cancelled)

17. (currently presented) An apparatus comprising a plurality of atmospheric mini-plasma devices, wherein each of the atmospheric mini-plasma devices comprises:

a housing comprising an exit for an atmospheric mini-plasma generated inside the housing to exit the housing;

a discharge chamber within the housing;

a first planar electrode disposed within the discharge chamber;

a second planar electrode disposed within the discharge chamber, said planar electrode parallel to and spaced apart from the first electrode such that a discharge gap is established between the first electrode and the second electrode, the first and second electrodes being configured to generate a mini-plasma that exits the housing;

a supply of active reaction gas;

a supply of plasma support gas;

an active reaction gas tube in fluid communication with the discharge chamber for sending active reaction gas into the discharge chamber; and

a plasma support gas tube in fluid communication with the discharge chamber for sending plasma support gas from the supply of plasma support gas into the discharge chamber, wherein the plasma support gas tube, the active reaction gas tube, and the housing are configured such that as active reaction gas that is sent through the active reaction gas tube and then through the discharge chamber and as plasma support gas is sent through the plasma support gas and then through the discharge chamber, passes through the discharge chamber, the active reaction gas is surrounded by a layer of the plasma support gas as both the active reaction gas and plasma support gas flow through the discharge chamber.

SN 10/616,610

Docket No. S-100,580

In Response to Office Action dated April 23, 2007

18. (cancelled)